

REMARKS

Claims 1-45 and 91-101 currently remain in the application. Claims 1 and 91 have been amended for the purposes of clarification.

Applicant thanks the Examiner for his time during the personal interview of March 16, 2004. As discussed in the interview, claims 1 and 91 have been amended to clarify that real-time rendering is provided by the present invention.

Rejections under 35 U.S.C. § 103

The Examiner rejected claims 1-7, 17-18, 20-21, 25-26, 31-43, 45, 91-92, 94-98 and 100 under 35 U.S.C. 103 (a) as being unpatentable over Itkis (US Patent No.4,856,787) in view of Nakano et al. (US Patent No.5,745, 109). The rejection is respectfully traversed.

The applicant respectfully submits that the combination of Itkis and Nakano does not teach all of the limitations of the present invention as recited in claims as amended 1-7, 17-18, 20-21, 25-26, 31-43, 45, 91-92, 94-98 and 100. In particular, the combination of Itkis and Nakano does not teach or suggest, in a gaming machine providing wagering on an outcome of a game of chance,

“rendering under control of the master gaming controller one or more two-dimensional images derived from the three-dimensional object in the three-dimensional gaming environment stored in the memory device on the gaming machine, said rendering comprising,

assembling a plurality of vertices defining surfaces of the three-dimensional object from the three-dimensional geometrical description of the three-dimensional object;

applying one or more of colors, textures, shades and combinations thereof to the three-dimensional object; and

projecting a portion of the plurality of vertices defined in the three-dimensional gaming environment to a two-dimensional surface to generate the one or more two-dimensional images wherein the gaming machine is operable to render the one or more two-dimensional images in real-time while the game of chance is being played on the gaming machine,”

as described in all of the rejected claims. To illustrate why the combination Itkis and Nakano does not teach all of the limitations of the present invention, the process of rendering in the present invention is first described and then contrasted with the teachings of Itkis and Nakano.

In the present invention, primitives for various 3-D objects are defined in a 3-D gaming environment stored on a memory device on the gaming machine. The primitives define points in a 3-D coordinate system of the 3-D gaming environment that may be connected to define surfaces and to form the 3-D objects in the 3-D gaming environment. Textures and/or colors may be defined for these objects in the 3-D environment. Rendering refers to the process of converting the primitives defined in the 3-D game environment to a 2-D image (bitmap) in a frame buffer that may be displayed on the gaming machine. The book "OpenGL Program Guide: The Official Guide to Learning OpenGL, Version 1.2," 3rd edition (referenced in the specification)," page 701, defines rendering as: *Conversion of primitives specified in object coordinates [i.e., coordinates in the 3-D game environment] to an image in the frame buffer.*

In the rendering process, the 3-D points defined in the 3-D gaming environment and their associated attributes, such as color and texture, are projected to a 2-D surface and converted to a bitmap, which is an array of pixels. The projection process is a well-defined mathematical operation involving linear algebra. The attributes of the projection depend on the position of a virtual camera in the 3-D gaming environment (see description of FIG. 1 in specification for more detail). The rendering process may be performed by hardware, such as a graphics card, by software, or combinations thereof. For additional details of the rendering process, the Applicant respectfully directs the Examiner to Chapter 1 of "OpenGL Program Guide: The Official Guide to Learning OpenGL," page 10 (Open GL Rendering Pipeline), previously submitted in an IDS.

In Itkis, pictures of 2-D numbers, symbols and shapes are illustrated. Itkis does not teach or suggest defining primitives in a 3-D gaming environment and rendering the points to a display screen. In Nakano, 3-D representations of objects appear to be pre-rendered and stored as bitmap images on the gaming machine. As an example, in Col. 13: 54-Col. 14:34, the display of 3-D icons is described. Nakano states that the bitmaps that are used to show a 3-D icon rotating are prepared in advance (pre-rendered) and stored as bitmap data. A number of bitmaps are played in a sequence to convey on the display a 2-D image of the 3-D object rotating (Col. 14:17-34). Nakano does not teach or suggest the process of rendering, as described in the pending claims, where 3-D objects are defined by a plurality of vertices in a 3-D gaming environment with their associated data stored in a memory device on the gaming machine and then rendered to generate 2-D images for display on the gaming machine. Instead, in Nakano, pre-rendered bitmaps, which do not contain any 3-D coordinate data, are simply played back from memory on the device. Thus, 3-D coordinate data for the 3-D objects in the images are not needed. In Nakano, defining and manipulating 3-D objects in a 3-D gaming environment and then rendering a scene from the 3-D gaming environment using a virtual camera is not described. As described in the present invention, one of the objectives and advantages is to avoid having to generate and store large amounts of pre-rendered images.

In the dependent claims of the present invention, rendering different features in the 3-D gaming environment, such as game outcome presentations, gaming machine maintenance

operations, attract mode features, bonus game presentations, and capturing 2-D images from the 3-D gaming environment are cited. As an example, rendering a gaming machine maintenance operation might include defining a model of a gaming machine and its parts in a 3-D gaming environment (e.g., vertices, colors, textures, etc.), animating the 3-D objects in the gaming environment that show the steps necessary to remove and install one of the parts as a function of time in the 3-D gaming environment (e.g., positions of objects as a function of time) and rendering all of this information to the display screen as a series of 2-D images. In regards to the gaming machine operation of claim 4, Examiner states that "*Nakano teaches rendering gaming machine operation in a 3-D environment, capturing the image on two or more 2-D images (Figs. 13-14).*" FIG. 13 and FIG. 14 show representations of 3-D objects. However, as described in the preceding paragraph, Applicant respectfully submits that Nakano does not teach, as recited in claim 4, "rendering a gaming machine maintenance operation in the 3-D gaming environment." The mere mention in Nakano that an operation that Examiner believes qualifies as a gaming machine operation does not mean it has been rendered in the 3-D gaming environment as the claims require. For instance, the operation in Nakano may be provided on the display screen as a series of pre-rendered bitmaps in the manner that the 3-D icons are generated on the display screen. Thus, applicant respectfully submits that the combination of Itkis and Nakano does not teach or suggest rendering in a 3-D gaming environment, such features as a game outcome presentation, gaming machine maintenance operation, an attract mode feature, a bonus game presentation, etc because neither reference or the combination of references teaches "rendering one or more two-dimensional images derived from a three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine" as recited in the pending claims. Therefore, for at least these reasons, the combination of Nakano and Itkis can't be said to render obvious the claims 1-7, 17-18, 20-21, 25-26, 31-43, 45, 91-92, 94-98 and 100 and the rejection is believed overcome thereby.

The Examiner rejected claims 8-10 under 35 U.S.C. 103 (a) as being unpatentable over Itkis (US Patent No.4,856,757) in view of Nakano et al. (US Patent No.5,745, 109) in further view of Paige (5,941,722). The rejection is respectfully traversed.

Paige teaches advertising associated with a gaming machine. Paige does not teach or suggest "rendering one or more two-dimensional images derived from a three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine," and in particular rendering of an attract mode, a promotional feature or casino information is not described. As described above, the combination of Itkis and Nakano does not teach the limitation of "rendering one or more two-dimensional images derived from a three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine." The teachings of Paige do not overcome the deficiencies associated with the combination of Itkis and Nakano. Further, Applicant believes there is not any motivation for the combination. Paige teaches drawing logos on mechanical slot reels. Applicant respectfully

asks: *Where in the references is any motivation provided to render promotions, advertising or casino information in a 3-D gaming environment?* Therefore, for at least these reasons, the combination of Nakano, Itkis and Paige can't be said to render obvious the claims 8-10 and the rejection is believed overcome thereby.

The Examiner rejected claims 11, 49, 99 and 101 under 35 U.S.C. 103 (a) as being unpatentable over Itkis (US Patent No.4,856,787) in view of Nakano et al. (US Patent No.5,745, 109) in further view of Luciano, Jr et al. (6, 050, 895). The rejection is respectfully traversed.

Examiner states Luciano teaches providing players with a bonus game. Luciano does not teach or suggest "rendering one or more two-dimensional images derived from a three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine," and in particular rendering of an attract mode, a promotional feature or casino information is not described. As described above, the combination of Itkis and Nakano does not teach the limitation of "rendering one or more two-dimensional images derived from a three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine." The teachings of Luciano do not overcome the deficiencies associated with the combination of Itkis and Nakano. Further, Applicant believes there is not any motivation for the combination. Applicant respectfully asks: *Where in the references is any motivation provided to render bonus games in a 3-D gaming environment?* Therefore, for at least these reasons, the combination of Nakano, Itkis and Luciano can't be said to render obvious the claims 11, 49, 99 and 101 and the rejection is believed overcome thereby.

The Examiner rejected claims 12-16, 29, 93 under 35 U.S.C. 103 (a) as being unpatentable over Itkis (US Patent No.4,856,787) in view of Nakano et al. (US Patent No.5,745, 109) in further view of O'Neill. (5, 621, 906). The rejection is respectfully traversed.

Examiner has stated that the motivation for combining Itkis and Nakano is that "one would be motivated to modify Itkis to use a 3-D interface for displaying multiple games and other selections so that a user selection maybe increased without having any detrimental effect to a user's visual perception, thus allowing more viewing content displayed at any one time." Examiner then also states "Itkis in view of Nakano and O'Neil are related through the use of a 3-D graphical interface that allows a better portrayal of information that was traditionally displayed in 2-D." Applicant respectfully asserts that the references contradict the motivation to combine asserted by the Examiner and thus the combination suggested by the Examiner is improper.

In the background section (Col. 1, 43-63) of Nakano, a display mode is developed that allows more icons to be displayed at once in a window. The size of the icons is reduce so that more icons can be displayed in the same display size but the user can get limited amounts of the information from the small icons because the small icon can carry only limited amounts of information. Thus, Applicant respectfully believes that Nakano contradicts the Examiner's motivation to combine. Examiner states that user selection maybe increased without having any

detrimental effect to a user's visual perception. As Nakano describes, to display more icons the size of the icons must be reduced and hence information must be lost. Thus, there is a detrimental effect to user's perception using the interface in Nakano and a better portrayal of information is not obtained as suggested for O'Neill. The effect suggested by Nakano (i.e., reducing icon size) could be achieved in Itkis in a much simpler manner by reducing the size of the 2-D graphics in the display windows of Itkis. Thus, a person in the skill in the art would not be motivated to use the interface provided in Nakano as it would provide no benefit and would be more complicated than simply reducing the size of the 2-D graphics. Applicant believes at least the same arguments can be made in regards to O'Neill, which is another 3-D interface. Thus, Applicant respectfully asserts that the combination is improper, as the references or the skill in the art do not provide a motivation for the combination. Therefore, for at least these reasons, the combination of Nakano, Itkis and O'Neill can't be said to render obvious the claims 12-16, 29, 93 and the rejection is believed overcome thereby.

The Examiner rejected claims 19, 22-23 under 35 U.S.C. 103 (a) as being unpatentable over Itkis (US Patent No.4, 856,787) in view of Nakano et al. (US Patent No.5, 745, 109) in further view of Sitrick (4, 572, 509). The rejection is respectfully traversed.

Sitrick does not teach 3-D graphical rendering. As described above, the combination of Itkis and Nakano does not teach the limitation of "rendering one or more two-dimensional images derived from a three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine." The teachings of Sitrick do not overcome the deficiencies associated with the combination of Itkis and Nakano. Therefore, for at least these reasons, the combination of Nakano, Itkis and Sitrick can't be said to render obvious the claims 19, 22-23 and the rejection is believed overcome thereby.

The Examiner rejected claims 24 under 35 U.S.C. 103 (a) as being unpatentable over Itkis (US Patent No.4, 856,787) in view of Nakano et al. (US Patent No.5, 745, 109) in further view of Sitrick (4, 572, 509) and in further view of Luciano. The rejection is respectfully traversed.

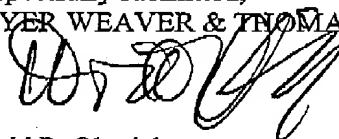
Sitrick and Luciano do not teach 3-D graphical rendering. As described above, the combination of Itkis and Nakano does not teach the limitation of "rendering one or more two-dimensional images derived from a three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine." The teachings of Sitrick and Luciano do not overcome the deficiencies associated with the combination of Itkis and Nakano. Therefore, for at least these reasons, the combination of Nakano, Itkis, Sitrick and Luciano can't be said to render obvious the claims 24 and the rejection is believed overcome thereby.

The Examiner rejected claims 27-28 and 30 under 35 U.S.C. 103 (a) as being unpatentable over Itkis (US Patent No.4, 856,787) in view of Nakano et al. (US Patent No.5, 745, 109) in further view of Karmarkar (6,508, 709). The rejection is respectfully traversed.

Karmarkar do not teach 3-D graphical rendering. As described above, the combination of Itkis and Nakano does not teach the limitation of "rendering one or more two-dimensional images derived from a three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine." The teachings of Karmarkar do not overcome the deficiencies associated with the combination of Itkis and Nakano. Therefore, for at least these reasons, the combination of Nakano, Itkis, and Karmarkar can't be said to render obvious the claims 27-28 and 30 and the rejection is believed overcome thereby.

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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